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IN-CAMERA MASKING WITH 35mm CAMERAS

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As exemplified by this photograph made according to the directions given in this article, in-camera masking is a process whereby two exposures are made sequentially on a piece of film and where image information is recorded onto unexposed spaces (dark areas) of the first exposure when the second exposure is made. This gives photographers the ability to place a given subject (usually inanimate since there should be no subject motion between exposures) in or against any background scene desired by the photographer (assuming the photographer owns a transparency of the particular location).



Sophisticated (and expensive) in-camera masking devices exist for 4x5 cameras but it should be possible for amateur photographers to exploit the potential for combining background and foreground images using 35mm cameras to mimick what the BIG cameras do with the following procedure:

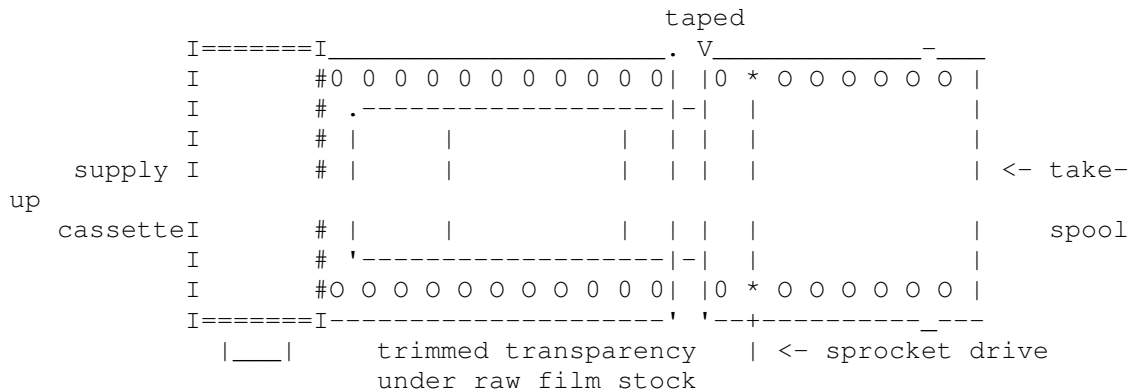
1. Attach a transparency of the location you want to appear in the background to a length of 35mm film. The transparency must be cut down so it is 24mm wide and is a bit longer on each side than the gate of the camera. You do this by cutting away the sprocket holes from a length of film about three frames long with the desired background image in the middle.
2. Using thin tape attach the right end of the above piece of film to a length of regular 35mm film so that it looks like an extension.
3. After you have cocked the shutter install this assembly into a 35mm camera making sure the sprocket holes engage the sprockets on the sprocket drive in the camera and the sprocketless portion of film traverses over to the other side of the image gate with the desired image located across the image gate of the camera.

Note that the transparency should be upside down in the gate of the camera and its emulsion should be facing the camera lens. You might use a _very_ small piece of two sided sticky tape placed on the opposite side of the gate from the sprockets to gently hold the film in place. Most often this is not really needed. Make sure to blow off any dust adhering to the film surface.

If you place a piece of groundglass over the film plane of the camera and open the camera's shutter, you should now see the subject you are aiming the camera at superimposed over the scene in the transparency located over the image gate.

4. In the dark now load some unexposed film into the camera making sure its sprocket holes do not reach and engage the sprocket drive.

This is how the completed assembly using "dummy" film should look like in the back of the camera:



5. To make the first exposure place the subject of interest (the foreground subject) in front of the camera and light it in silhouette against a white background. The camera should be securely attached to a firm tripod and the subject should be able to stand still for several seconds if you expect good registration of your subject against the chosen background. However, sometimes interesting effects can be achieved by exploiting misregistration effects.

To determine the exposure necessary for the first shot make it based on a reflected light reading off the white background using a film speed that is three stops slower than the film you have loaded in the camera or using the film at its's rated speed base it on a reflected meter reading made off an 18% grey card placed on the white background.

If you have an incident meter then determine exposure by placing it on the white background and aimed at the camera. If you are using an unusually dark transparency you might want to overexpose by a stop or two over what would be required for a "normal" exposure.

6. After this shot recock the shutter and fire it with a lenscap over the lens. Recoek the shutter again and you are ready for the second exposure of the in-camera masking set. This should have moved the transparency out of the way and rolled it up onto the take-up spool.

7. Now to make your second exposure, replace the white background with an absolutely black background behind your subject. Black velvet is best. Move your lights so that they illuminate your subject as desired but without spilling much light onto the background.

Without changing the aperture, determine the exposure time required to properly expose you subject using an incident or reflected meter reading but make sure to make it based on using the film's normal speed rating.

Since the raw film stock was not connected to the sprocket drive of the camera it should not have moved between exposures. If it was connected to the supply spool then you could at this time rewind the film into the supply cassette and process it. Otherwise, empty the camera in a darkroom and complete the development process. Note that the image of interest is going to be located very close to the end of the film so take extra care to handle this end with care.

Taking an extra step to minimize scratches to the "background" transparency might be something you want to do. Since this transparency may "whip around" the take up chamber as it is advanced out of the way of the film, you could temporarily install felt or other soft surface over some of the metal parts of the take up chamber for the transparency to rub against.



Above is a step-by-step story of how this effect was achieved to place an image of a desert scene in the background of a microscope sitting on a tripod head (not too creative I admit!). On the left is the result of the first exposure where the microscope is lit in silhouette and the background behind it is white and the transparency of the desert scene is located between the film plane rails of the camera. The second image is that which would result from making a photograph of the microscope against a black background with the transparency removed from in front of the raw film stock. The third image is the result of the two exposures taking place on a single frame of 35mm film.

By the way, a similar scheme can be undertaken with 2 1/4 cameras that have a removable back. These backs are typically attached to the camera body by fairly precise locating pins and it is possible to replace the back fairly close to its original position after removing it from the body. This opens up the possibility of placing a transparency over the film gate aperture of the back and after making the silhouette shot, taking the back off, removing the transparency, replacing the back and making the second exposure (recocking the shutter while the back is off the camera body). Since this does not require opening a back (such as in a 35) to replace the transparency, it is possible to make more than 1 ICM image on a roll of 120 or 220 film.

In any case, you should end up with a composite image where it will be difficult to tell that the foreground object was not located in the scene that you chose for its background. The photographs shown at the top and bottom of this page were made with a 35mm camera exactly as described in the article. If you want to make sure the illusion is not destroyed make sure the lighting direction in the foreground scene matches that of the background scene. There are a lot of interesting possibilities to in-camera masking.

If you would like to discuss this project with me I would be happy to provide whatever assistance is needed. Contact me at RIT, PO box 9887, Rochester, NY 14623. Phone 716-475-2592, fax 716-475-5804 ... but the fastest way is to just send me e-mail at andpph@rit.edu